

REMARKS/ARGUMENTS

Reconsideration of the application is respectfully requested for the following reasons:

Rejection of Claims 1-3, 5 and 7 Under 35 U.S.C. §102(b)

Claims 1, 5-7 are rejected under 35 U.S.C. §102(b) as being anticipated by Lee et al. (US 6,033,981). In the rejected claims, Claim 1 is independent.

Applicant respectfully traverses this rejection.

This rejection is respectfully traversed on the basis that the teaching of Lee et al. fails to teach every element of the claimed invention. Lee et al. is insufficient to render the claimed invention unpatentable.

Particularly, Lee et al. fail to disclose a step of forming a second dielectric layer on said first dielectric layer by a third high density plasma to fill gaps between said metal lines and cover said metal lines and said portion of said first dielectric layer with said geometric shape to form an inter-metal dielectric layer. It is quite clear that portions 18 of the first HDP oxide layer 14 are removed before the second HDP oxide layer 22 is deposited which is contrary to the claimed invention. As shown in FIG. 7 of Lee et al., the peaks of the nitride layer 16 and exposing oxide layer 18 over the conductive lines 12 are removed by chemical mechanical polishing. Then a wet etch is used to completely remove the exposed oxide layer 18 overlying the conductive lines 12. For metal conductive lines 12, an isotropic etch with a high selectivity between SiN and metal is used. This is followed by a nitride wet dip to completely remove the silicon nitride layer 16 as shown in FIG. 8. Therefore, the teaching of Lee et al. fails to teach every element of the claimed invention. One person with ordinary

skill in the art would not anticipate the claimed invention by viewing the teaching of Lee et al. Lee et al. fail to render the claimed invention unpatentable as it fails to disclose each and every element expressly or inherently in the reference. See MPEP §2131.

Rejection of Claims 2-4, 8-27 Under 35 U.S.C. §103(a)

Claims 2-4, 8-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee et al. (US 6,033,981) in view of Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) .

The rejection of claims 2-4 and 8-19 is respectfully traversed since claim 1 is patentable over Lee et al. (US 6,033,981) in view of Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) . Particularly, Lee et al. (US 6,033,981) fail to disclose a step of forming a second dielectric layer on said first dielectric layer by a third high density plasma to fill gaps between said metal lines and cover said metal lines and said portion of said first dielectric layer with said geometric shape to form an inter-metal dielectric layer. Neither Kim et al. (US2004/0119170) nor Lee et al. (US 6,103,630) teaches this step.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See MPEP §2143. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, the teachings of citations are actually insufficient to render

the claimed invention unpatentable and thus Claim 1 as well as Claims 2-4 and 8-19 are patentable over Lee et al. (US 6,033,981) , Kim et al.

(US2004/0119170) and Lee et al. (US 6,103,630) .

The rejection of claims 20-27 is respectfully traversed since the combination of Lee et al. (US 6,033,981) , Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) fails to teach all the claim limitations of the claimed invention.

In particular, the combination of Lee et al. (US 6,033,981) , Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) fails to disclose a step of producing a third high density plasma from said third mixed gas to form a second dielectric layer on said first dielectric layer to fill gaps between said metal lines and cover said metal lines and said portion of said first dielectric layer with said geometric shape thereon to form an inter-metal dielectric layer. It is quite clear that portions 18 of the first HDP oxide layer 14 of Lee et al. (US 6,033,981) are removed before the second HDP oxide layer 22 is deposited which is contrary to the claimed invention. Moreover, neither Kim et al. (US2004/0119170) nor Lee et al. (US 6,103,630) teaches this feature. Furthermore, the methods of Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) disclose very dissimilar steps comparing to the claimed invention respectively. Kim et al. (US2004/0119170) discloses a method for fabricating a semiconductor device having self-aligned contact plug while Lee et al. (US 6,103,630) discloses a method including adding SF₆ gas to improve metal undercut. Therefore, the

combination of Lee et al. (US 6,033,981) , Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) fails to teach every element of the claimed invention.


One person with ordinary skill in the art would not anticipate the claimed invention by viewing the teaching of Lee et al. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See MPEP §2143.03 If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. Therefore, the teachings of Lee et al. (US 6,033,981) , Kim et al. (US2004/0119170) and Lee et al. (US 6,103,630) are actually insufficient to render the claimed invention unpatentable and thus Claims 20-26 are patentable over these citations.

Conclusion

In light of the above remarks to the claims, Applicant contends that claimed invention is patentable thereover. Claims 1-26 are in condition for favorable consideration and allowance and therefore a Notice of Allowance is most respectfully requested.

Should the Examiner believe that a telephonic or in-person conference would expedite the prosecution of this Application, they are encouraged to contact the Applicant's counsel at the numbers listed below.

Respectfully submitted,
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